



## Momentum crashes

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### ABSTRACT

Despite their strong positive average returns across numerous asset classes, momentum strategies can experience infrequent and persistent strings of negative returns. These momentum crashes are partly forecastable. They occur in panic states, following market declines and when market volatility is high, and are contemporaneous with market rebounds. The low ex ante expected returns in panic states are consistent with a conditionally high premium attached to the option like payoffs of past losers. An implementable dynamic momentum strategy based on forecasts of momentum's mean and variance approximately doubles the alpha and Sharpe ratio of a static momentum strategy and is not explained by other factors. These results are robust across multiple time periods, international equity markets, and other asset classes.

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### 1. Introduction

A momentum strategy is a bet on past returns predicting the cross section of future returns, typically implemented by buying past winners and selling past losers. Momentum is pervasive: the academic literature shows the efficacy of momentum strategies across multiple time periods, in many markets, and in numerous asset classes.<sup>1</sup>

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<sup>1</sup> Momentum strategies were first shown in US common stock returns from 1965 to 1989 by Jegadeesh and Titman (1993) and Asness (1994), by sorting firms on the basis of three- to 12-month past returns. Subsequently, Jegadeesh and Titman (2001) show the continuing efficacy of US equity momentum portfolios in common stock returns in the 1990 to 1998 period. Israel and Moskowitz (2013) show the robustness of momentum prior to and after these studies from 1927 to 1965 and from 1990 to 2012. Evidence of momentum going back to the Victorian age from Chabot, Ghysels, and Jagannathan (2009) and for 1801 to 2012 from Geczy and Samonov (2015) in what the authors call “the world's longest backtest.” Moskowitz and Grinblatt (1999) find momentum in industry portfolios. Rouwenhorst (1998); 1999) finds momentum

in developed and emerging equity markets, respectively. Asness, Liew, and Stevens (1997) find momentum in country indices. Okunev and White (2003) find momentum in currencies; Erb and Harvey (2006) in commodities and Moskowitz, Ooi, and Pedersen (2012) in exchange traded futures contracts. Asness, Moskowitz, and Pedersen (2013) integrate this evidence across markets and asset classes and find momentum in bonds as well.

However, the strong positive average returns and Sharpe ratios of momentum strategies are punctuated with occasional crashes. Like the returns to the carry trade in currencies (e.g., Brunnermeier, Nagel, and Pedersen, 2008), momentum returns are negatively skewed, and the negative returns can be pronounced and persistent. In our 1927–2013 US equity sample, the two worst months for a momentum strategy that buys the top decile of past 12-month winners and shorts the bottom decile of losers are consecutive: July and August of 1932. Over this short period, the past-loser decile portfolio returned 232% and the past-winner decile portfolio had a gain of only 32%. In a more recent crash, over the three-month period from March to May of 2009, the past-loser decile rose by 163% and the decile portfolio of past winners gained only 8%.

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